LOL-HECO-IR-69

Ref: "transmission systems should be designed to withstand the most probable outages in order to remain stable" (T-4, page 23, lines 20-21)

Question(s):

a. How does HECO determine the probability of different types of outages?

b. Please state all course work, articles written, talks given, testimony given and all other expertise that witness T-4 has in probability, statistics, confidence intervals, variance, covariance, and statistical robustness.

c. Should the utility rely on the most probable outages based on historic data or the experiential background and history of transmission and distribution engineers?

d. Do you believe that transmission engineers trained in deterministic approaches would be able to fairly evaluate probability analysis?

HECO Response:

a. HECO does not calculate the probability of different types of outages on the transmission system. Refer to the responses to LOL-HECO-IR-30 and LOL-HECO-IR-64.

b. Ms. Ishikawa has taken a graduate level statistics course as part of the requirements for the University of Hawaii at Manoa Masters in Business Administration ("M.B.A.") program. Ms. Ishikawa attained her M.B.A. from the University of Hawaii at Manoa in December 2000.

c. As stated in HECO T-4, page 4, HECO utilizes load flow analysis and Transmission Planning Criteria, which provides guidelines for planning the HECO system. Please refer to the response to LOL-IR-HECO-64.

d. In a hypothetical situation where HECO were to utilize probabilistic planning analysis for the transmission system, it would be possible for HECO transmission planning engineers to use probabilistic analyses. In this hypothetical situation, it is assumed that the HECO

engineers would receive the proper training to be able to use the tools and databases and to determine the methodologies for the HECO system.